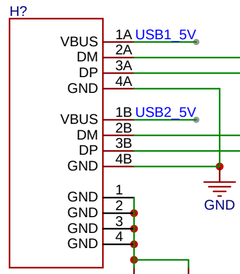
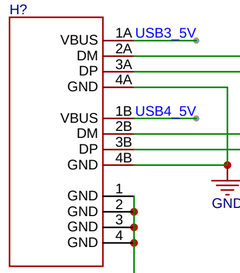
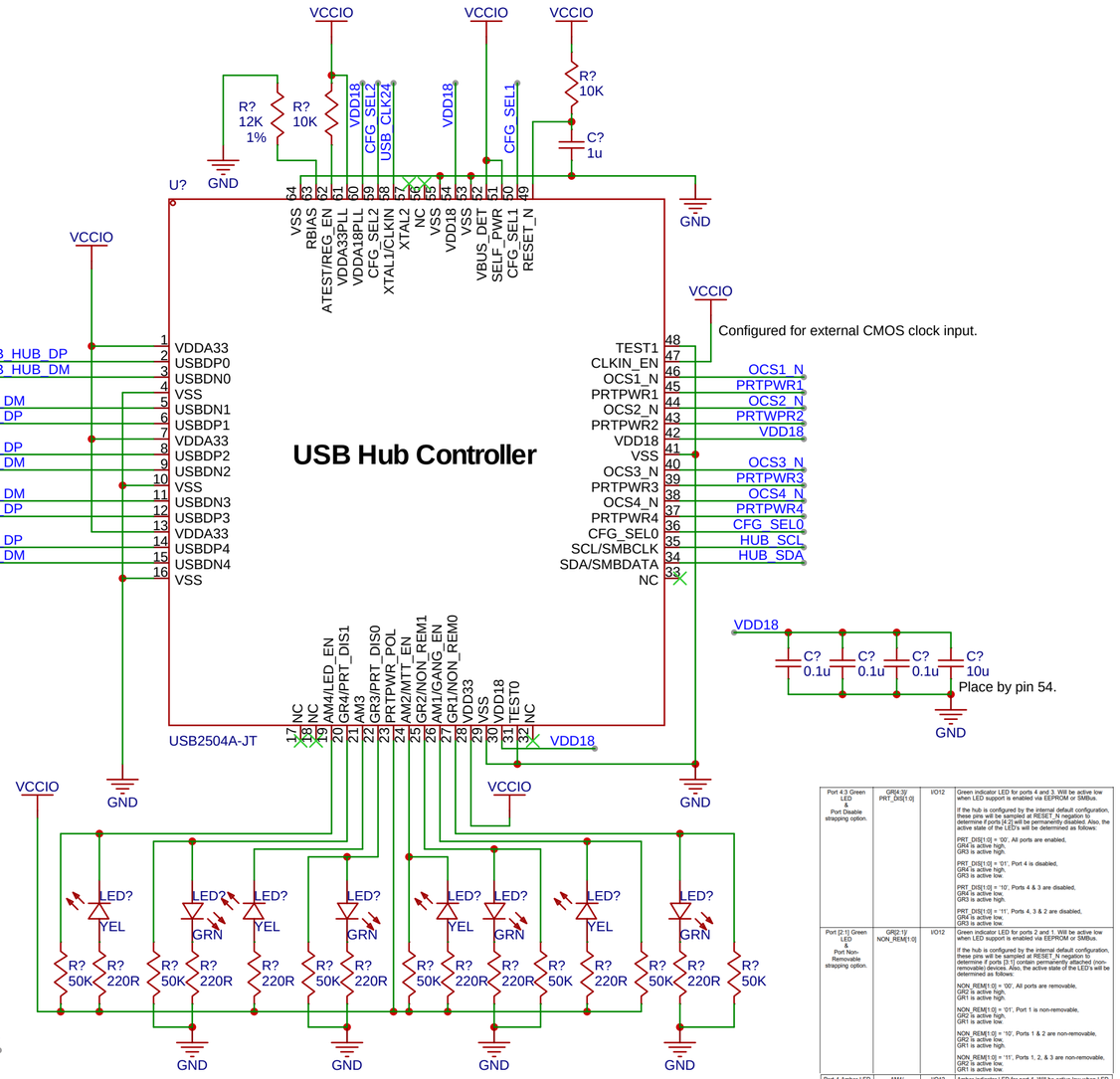
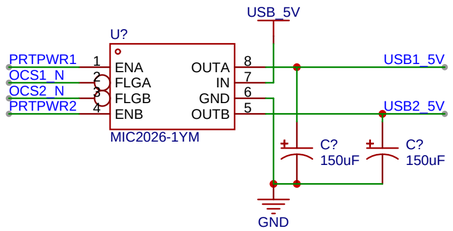
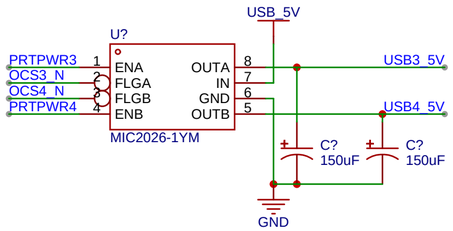
4x USB Type A Sockets



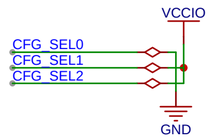








USB Connector Power Switches

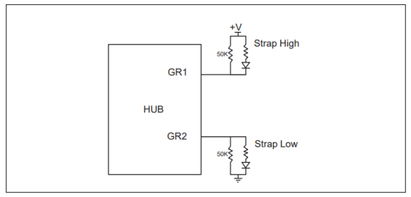


Config set as Table 4-2, p.10 of USB2504 datasheet for internal configuration w/strapping options.

USB Hub Config

The Amber and Green LED pins are sampled after RESET_N negation, and the logic values are used to configure the hub if the internal default configuration mode is selected. The implementation shown below (see Figure 5-1) shows a recommended passive scheme. When a pin is configured with a "Strap High" configuration, the LED functions with active low signaling, and the PAD will "sink" the current from the external supply. When a pin is configured with a "Strap Low" configuration, the LED functions with active high signaling, and the PAD will "source" the current to the external LED.

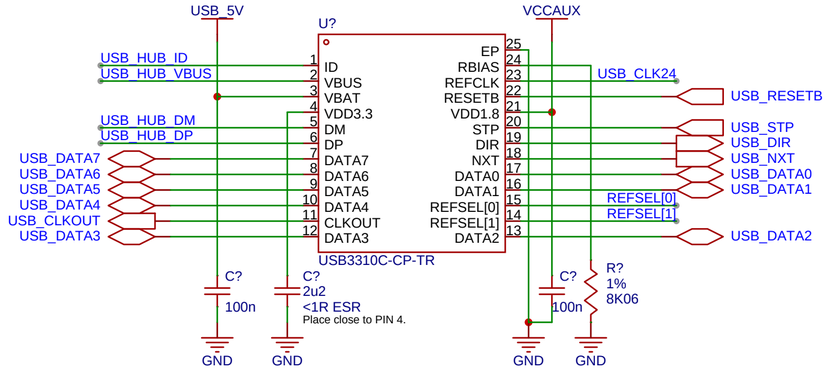
FIGURE 5-1: LED STRAPPING OPTION



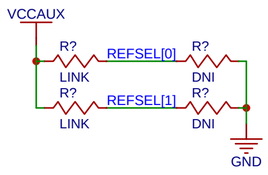
Port 4:3 Green LED & Port Disable strapping option.	GR[4:3]/ PRT_DIS[1:0]	I/O12	Green indicator LED for ports 4 and 3. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, these pins will be sampled at RESET_N negation to determine if ports [4:2] will be permanently disabled. Also, the active state of the LED's will be determined as follows: PRT_DIS[1:0] = '00', All ports are enabled, GR4 is active high, GR3 is active high. PRT_DIS[1:0] = '01', Port 4 is disabled, GR4 is active high, GR3 is active low. PRT_DIS[1:0] = '10', Ports 4 & 3 are disabled, GR4 is active low, GR3 is active high. PRT_DIS[1:0] = '11', Ports 4, 3 & 2 are disabled, GR4 is active low, GR3 is active low.
Port [2:1] Green LED & Port Non-Removable strapping option.	GR2:1]/ NON_REM[1:0]	I/O12	Green indicator LED for ports 2 and 1. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, these pins will be sampled at RESET_N negation to determine if ports [3:1] contain permanently attached (non-removable) devices. Also, the active state of the LED's will be determined as follows: NON_REM[1:0] = '00', All ports are removable, GR2 is active high, GR1 is active high. NON_REM[1:0] = '01', Port 1 is non-removable, GR2 is active high, GR1 is active low. NON_REM[1:0] = '10', Ports 1 & 2 are non-removable, GR2 is active low, GR1 is active high. NON_REM[1:0] = '11', Ports 1, 2, & 3 are non-removable, GR2 is active low, GR1 is active low.
Port 4 Amber LED & LED Enable strapping option	AM4/ LED_EN	I/O12	Amber indicator LED for port 4. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if LED support is enabled or disabled. Also, the active state of the LED will be determined as follows: '0' = LED support is disabled, LED is inactive '1' = LED Support is enabled, LED is active low.
Port 3 Amber LED	AM3	I/O12	Amber indicator LED for port 3. Signal will be active low.
Port 2 Amber LED & MTT Disable	AM2/ MTT_EN	I/O12	Amber indicator LED for port 2. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if MTT support is disabled (SIT only). Also, the active state of the LED will be determined as follows: '0' = MTT support is disabled, LED is active high '1' = MTT support is enabled, LED is active low.
Port 1 Amber LED & Gang Power Switching and Current Sensing strapping option.	AM1/ GANG_EN	I/O12	Amber indicator LED for port 1. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if downstream port power switching and current sensing are ganged, or individual port-by-port. Also, the active state of the LED will be determined as follows: '0' = Port-by-port sensing & switching, LED is active high '1' = Ganged sensing & switching, LED is active low.
Port Power Polarity strapping.	PRTPWR_POL	I/O12	Port Power Polarity strapping determination for the active signal polarity of the [4:1]PRTPWR pins. While RESET_N is asserted, the logic state of this pin will (though the use of internal combinatorial logic) determine the active state of the [4:1]PRTPWR pins in order to ensure that downstream port power is not inadvertently enabled to inactive ports during a hardware reset. On the rising edge of RESET_N (see the applicable RESET_N timing table in Section 5.6.1), the logic value will be latched internally, and will retain the active signal polarity for the PRTPWR[4:1] pins. '1' = PRTPWR[4:1]_PIN pins have an active 'high' polarity '0' = PRTPWR[4:1]_PIN pins have an active 'low' polarity
Port 4 Amber LED & LED Enable strapping option	AM4/ LED_EN	I/O12	Amber indicator LED for port 4. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if LED support is enabled or disabled. Also, the active state of the LED will be determined as follows: '0' = LED support is disabled, LED is inactive '1' = LED Support is enabled, LED is active low.
Port 3 Amber LED	AM3	I/O12	Amber indicator LED for port 3. Signal will be active low.
Port 2 Amber LED & MTT Disable	AM2/ MTT_EN	I/O12	Amber indicator LED for port 2. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if MTT support is disabled (SIT only). Also, the active state of the LED will be determined as follows: '0' = MTT support is disabled, LED is active high '1' = MTT support is enabled, LED is active low.
Port 1 Amber LED & Gang Power Switching and Current Sensing strapping option.	AM1/ GANG_EN	I/O12	Amber indicator LED for port 1. Will be active low when LED support is enabled via EEPROM or SMBus. If the hub is configured by the internal default configuration, this pin will be sampled at RESET_N negation to determine if downstream port power switching and current sensing are ganged, or individual port-by-port. Also, the active state of the LED will be determined as follows: '0' = Port-by-port sensing & switching, LED is active high '1' = Ganged sensing & switching, LED is active low.
Port Power Polarity strapping.	PRTPWR_POL	I/O12	Port Power Polarity strapping determination for the active signal polarity of the [4:1]PRTPWR pins. While RESET_N is asserted, the logic state of this pin will (though the use of internal combinatorial logic) determine the active state of the [4:1]PRTPWR pins in order to ensure that downstream port power is not inadvertently enabled to inactive ports during a hardware reset. On the rising edge of RESET_N (see the applicable RESET_N timing table in Section 5.6.1), the logic value will be latched internally, and will retain the active signal polarity for the PRTPWR[4:1] pins. '1' = PRTPWR[4:1]_PIN pins have an active 'high' polarity '0' = PRTPWR[4:1]_PIN pins have an active 'low' polarity

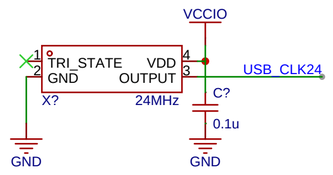
TABLE 4-2: SMBUS OR EEPROM INTERFACE BEHAVIOR

CFG_SEL2	CFG_SEL1	CFG_SEL0	SMBus or EEPROM Interface Behavior
X	0	0	Configured as an SMBus slave for external download of user-defined descriptors. SMBus slave address is 0101100
X	0	1	Configured as an SMBus slave for external download of user-defined descriptors. SMBus slave address is 0101101
0	1	0	Internal Default Configuration
1	1	0	Internal Default Configuration via strapping options.
X	1	1	2-wire (I^2C) EEPROMS are supported.



USB PHY





REFSEL		REFCLK FREQUENCY
[1]	[0]	
0	0	13 MHz
0	1	19.2 MHz
1	0	26 MHz
1	1	24 MHz

USB Clock & PHY Config

USB Connector Power Switches

Schematic	XCAT-7100	Update Date	2023-03-19
		Create Date	2023-02-11
Page	USB HUB	Part Number	
Drawed	nockieboy	XCAT-7100_Pro	
Reviewed			
		VER	SIZE
EasyEDA		V0.1	A4

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